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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|------------------------------|-------------|----------------------|---------------------|------------------|
| 10/586,081 | 07/23/2007 | Ralph Greiner | 57988/E393 | 9436 |
| 23363 | 7590 | 07/08/2010 | | |
| CHRISTIE, PARKER & HALE, LLP | | | EXAMINER | |
| PO BOX 7068 | | | YI, STELLA KIM | |
| PASADENA, CA 91109-7068 | | | | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1791 | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/586,081 | Applicant(s) GREINER, RALPH | |
| | Examiner Stella Yi | Art Unit 1791 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2 and 3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 2 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by FAN (EP 0393676).

Regarding Claim 2, FAN discloses a method for accurately fabricating an integral three-dimensional object from successive layers of a photohardenable liquid composition comprising the steps of:

- a) forming a layer of a photohardenable liquid (Page 3, line 39);
- b) photohardening at least a portion of the layer of photohardenable liquid by exposure to actinic radiation (Page 3, lines 40-41);
- c) introducing a new layer of photohardenable liquid onto the layer previously exposed to actinic radiation (applying a layer of particles onto a target surface) (Page 3, lines 42-43);
- d) photohardening at least a portion of the new liquid layer by exposure to actinic radiation, wherein the actinic radiation is the form of a beam of energy (Page 4, lines 26-39) (irradiating a selected part of the layer that corresponds to a cross-section of the object with a beam of energy), with the requirement that the photohardenable composition comprises an ethylenically unsaturated monomer, a photoinitiator, and radiation deflecting matter, the deflecting matter being in the form of hollow spheres

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(particles are used in the layer composition that contain at least one cavity) acting as a thermal insulator and having a first index of refraction (Page 3, lines 44-49), the said hollow sphere particles in the selected part will inherently become connected to each other due to the photohardening of the part by the actinic radiation; and

e) successively repeating steps (c) and (d) until the three dimensional object is complete (repeating the steps of application and irradiation such that the connected parts of adjacent layers connect to each other to form the object) (Page 3, line 50).

FAN discloses that the said hollow sphere deflecting matter provides adequate heat capacity to dissipate the excessive heat of photohardening, but still provide thermal insulation to increase the photospeed (Page 8, lines 44-45). Therefore, the said hollow spheres (particles) would inherently react to the actinic radiation (beam of energy). Such actinic radiation would induce the said hollow spheres to react in order to dissipate the excessive heat and provide thermal insulation to increase the photospeed and promote photohardening of the composition.

Regarding Claim 3, FAN discloses that said hollow spheres (particles with cavities) provide adequate heat capacity to dissipate the excessive heat of photohardening, but still provide thermal insulation to increase the photospeed (Page 8, lines 43-45). These effects are illustrated in Examples 2, 3A to 3C, 4A, and 4B FAN wherein the said hollow spheres are undistorted and uniform (Page 8, line 47). Therefore, FAN teaches that the said hollow spheres (particles) are irradiated such that the cavities are essentially preserved.

Response to Arguments

3. Applicant's arguments filed 06/10/2010 have been fully considered but they are not persuasive.

Applicant argues although Fan discloses hollow spheres, these spheres are inert matter and are not melted by the actinic radiation. Examiner respectfully disagrees. Amended Claim 2 recites: "wherein the particles that are used contain at least one cavity and are at least partially dissolved, induced to react or melted by the beam of energy or jet of liquid". Fan discloses photohardening at least a portion of the new liquid layer by exposure to actinic radiation, wherein the actinic radiation is the form of a beam of energy (Page 4, lines 26-39) (irradiating a selected part of the layer that corresponds to a cross-section of the object with a beam of energy), with the requirement that the photohardenable composition comprises an ethylenically unsaturated monomer, a photoinitiator, and radiation deflecting matter, the deflecting matter being in the form of hollow spheres (particles are used in the layer composition that contain at least one cavity) acting as a thermal insulator and having a first index of refraction (Page 3, lines 44-49). FAN discloses that the said hollow sphere deflecting matter provides adequate heat capacity to dissipate the excessive heat of photohardening, but still provide thermal insulation to increase the photospeed (Page 8, lines 44-45). Therefore, the said hollow spheres (particles) would inherently react to the actinic radiation (beam of energy). Such actinic radiation would induce the said hollow spheres to react in order to dissipate the excessive heat and provide thermal insulation to increase the photospeed and promote photohardening of the composition.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stella Yi whose telephone number is 571-270-5123. The examiner can normally be reached on Monday - Thursday from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SY

/Jeff Wollschlager/
Primary Examiner, Art Unit 1791